ABSTRACT

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Title of Thesis **Osmotic concentration of parenteral preparations. Nonelectrolytes.**

Osmotic concentration is an important property of parenteral products. Because the preparatios are applied by volume, osmotic concentration is expressed as osmolarity (osmol/l). However, physical measurement of osmotic concentration by osmometer gives osmolality (osmol/kg). This is why the mutual conversion between these concentrations is necesary.

In this thesis, the density at 20°C and osmolality of aqueous solutions of three parenteral solutes: mannitol, sorbitol and urea, in concentration range 0,1-1,0 mol/kg and/or mol/l, respectively, were measured. Then, the accuracy of osmolarity estimation using methods presented in USP 32 was studied.

Based on the results, the most precise estimation of osmolarity was obtained due to the equation which employs the measured osmolality and the density of solution, and the parcial specific volume of the solute.

Finally, labeling of parenterals with their measured omolality and density could be recommended.